Amendments to the Claims

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

Claims 1-7

Claim 8 (Currently Amended): [[The]] A method for modeling [[the]] a semiconductor device process according to claim 1, comprising:

(a) setting data of an SiO_2 layer;

(b) setting data of an Si layer brought in contact with said SiO_2 layer;

(c) setting a plurality of cells in said Si layer, and setting an amount of an impurity included in each of said cells;

(d) setting an amount per unit time by which said impurity included in each of said cells moves to another cell;

(e) setting data by which a cell in a vicinity of an interface of said SiO_2 layer and said Si layer is set as an impurity pileup portion;

(f) setting data of a position of a source or a drain in said Si layer; and

(g) calculating the amount of said impurity included in each of said cells for each unit time after processing said steps (a) through (f),

wherein an amount of said impurity in each of said cells moving to said impurity

pileup portion from each of said cells is determined as an impurity density as a function

of a distance r1 to said impurity pileup portion from each of said cells, and a function of

a distance r2 to said source or said drain from each of said cells,

wherein the function of the distance r1 is

$$\exp(-r1/\lambda 1),$$

wherein the function of the distance r2 is

$$\exp(-r2/\lambda 2), \text{ and}$$

wherein $\lambda 1$, $\lambda 2$ are source and drain process dependent parameters, wherein

$\lambda 1 = 2.0 \mu m$ and $\lambda 2 = 0.5 \mu m$.

Claim 9 (Currently Amended): [[The]] A method for modeling [[the]] a semiconductor

device process ~~according to claim 1~~, comprising:

(a) setting data of an SiO_2 layer;

(b) setting data of an Si layer brought in contact with said SiO_2 layer;

(c) setting a plurality of cells in said Si layer, and setting an amount of an impurity

included in each of said cells;

(d) setting an amount per unit time by which said impurity included in each of

said cells moves to another cell;

(e) setting data by which a cell in a vicinity of an interface of said SiO_2 layer and

said Si layer is set as an impurity pileup portion;

(f) setting data of a position of a source or a drain in said Si layer; and

(g) calculating the amount of said impurity included in each of said cells for each unit time after processing said steps (a) through (f),

wherein an amount of said impurity in each of said cells moving to said impurity pileup portion from each of said cells is determined as an impurity density as a function of a distance r1 to said impurity pileup portion from each of said cells, and a function of a distance r2 to said source or said drain from each of said cells,

wherein the amount of said impurity moving to said pileup portion from each of said cells is determined as a product of the function of the distance r1 and the function of the distance r2.